WHAT IS CLAIMED IS:

1.   A system for integrating Web Services with a business system, comprising:

    a processor; and

5   a memory comprising program instructions, wherein the program instructions are executable by the processor to:

    generate an integrated Web Service architecture comprising a plurality of heterogeneous components of the business system in accordance with one or more integration design patterns;

10   wherein, to generate an integrated Web Service architecture, the program instructions are further executable by the processor to:

    generate one or more Use Cases for the integrated Web Service;

    generate a high-level architecture for the integrated Web Service, wherein the high-level architecture identifies two or more

15   entities of the integrated Web Service and the relationships and interactions among the entities; and

    generate a logical architecture for the integrated Web Service according to the Use Cases, wherein the logical architecture identifies two or more logical components of the integrated

20   Web Service and the relationship among the logical components, and wherein the logical architecture comprises two or more layers.

2.   The system as recited in claim 1, wherein, to generate an integrated Web Service

25   architecture, the program instructions are further executable by the processor to:

    define a plurality of integration tiers, one or more basic components, and one or more Web Services technologies for integration; and

    define how each of the plurality of integration tiers communicates with others of the plurality of integration tiers.

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3. The system as recited in claim 2, wherein the plurality of integration tiers comprises one or more of: a client tier, a presentation tier, a business tier, an integration tier, and a resources tier.

5   4. The system as recited in claim 1, wherein, to generate an integrated Web Service architecture, the program instructions are further executable by the processor to define integration of one or more Enterprise Application Interface (EAI) products with the one or more Web Services technologies.

10   5. The system as recited in claim 1, wherein the business system is an Enterprise business system.   .

6. The system as recited in claim 1, wherein the business system is a Cross-Enterprise business system.

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7. The system as recited in claim 1, wherein the plurality of heterogeneous components of the business system includes one or more legacy mainframe systems.

8. The system as recited in claim 1, wherein the integrated Web Service architecture

20   comprises:

a service provider configured to provide one or more services on an integrated Web Service business system implemented according to the integrated Web Service architecture; and

one or more service requesters configured to access the one or more services from

25   the service provider via a network.

9. The system as recited in claim 8, wherein the integrated Web Service business system is a Business-to-Consumer system, wherein the service provider is a business service provider, and wherein the service requester is an end user.

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10. The system as recited in claim 8, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

11. The system as recited in claim 1, wherein the design patterns include one or more Mainframe integration and interoperability design patterns.

12. The system as recited in claim 11, wherein the Mainframe integration and interoperability design patterns include one of a Synchronous Mainframe Web Services design pattern and an Asynchronous Mainframe Web Services design pattern.

13. The system as recited in claim 1, wherein the design patterns include one or more integration design patterns.

14. The system as recited in claim 13, wherein the integration design patterns include one or more of:

an Application-to-Application design pattern;

a Standard Build design pattern;

a Hub-Spoke Replication design pattern;

a Federated Replication design pattern;

a Multi-Step Application integration design pattern; and

a Data Exchange design pattern.

15. The system as recited in claim 1, wherein the design patterns include one of a Closed Process integration design pattern and an Open Process integration design pattern.

16. The system as recited in claim 15, wherein the design patterns include one of a Service Consolidation–Broker integration design pattern and a Reverse Auction–Broker integration design pattern.

17. The system as recited in claim 1, wherein the layers comprise two or more of:

a network layer configured to serve as an underlying network for integrated Web Services implemented according to the integrated Web Service architecture;

a transport layer for delivering messages between components of the integrated Web Services;

a service description language layer configured to describe service type and functionality of the integrated Web Services;

a transaction routing layer configured to route messages on the transport layer;

a service discovery layer configured to search for and locate the integrated Web Services;

a service negotiation layer configured to negotiate exchanges between service requesters and service providers implemented according to the integrated Web Service architecture;

a management layer configured for provisioning of the integrated Web Services and for monitoring and administration of the integrated Web Services;

a Quality of Service layer configured to provide reliability, scalability, and availability for the integrated Web Services;

a security layer configured to provide authentication, entitlement, and non-repudiation security on the transport layer; and

an Open Standards layer.

18. A system for generating an integrated Web Service architecture, comprising:

a processor; and

a memory comprising program instructions, wherein the program instructions are executable by the processor to:

identify one or more components of the integrated Web Service architecture according to one or more use case requirements;

define a plurality of integration tiers and one or more Web Services technologies according to a Web Services architecture integration framework;

define how each of the plurality of integration tiers communicates with others of the plurality of integration tiers according to the Web Services architecture integration framework;

organize the components according to the integration tiers and two or more layers of the integrated Web Service architecture; and

apply one or more design patterns to the integrated Web Service architecture where appropriate.

19. The system as recited in claim 18, wherein the integrated Web Service architecture comprises:

a service provider configured to provide one or more services on an integrated Web Service business system implemented according to the integrated Web Service architecture; and

one or more service requesters configured to access the one or more services from the service provider via a network.

20. The system as recited in claim 19, wherein the integrated Web Service business system is a Business-to-Consumer system, wherein the service provider is a business service provider, and wherein the service requester is an end user.

21. The system as recited in claim 19, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

22. The system as recited in claim 18, wherein the layers comprise two or more of:

a network layer configured to serve as an underlying network for Web Services implemented according to the integrated Web Service architecture;

a transport layer for delivering messages between components of the integrated Web Service architecture;

a service description language layer configured to describe service type and functionality of the integrated Web Service architecture;

5   a transaction routing layer configured to route messages on the transport layer;

a service discovery layer configured to search for and locate services in the integrated Web Service architecture;

a service negotiation layer configured to negotiate exchanges between service requesters and service providers implemented according to the integrated

10   Web Service architecture;

a management layer configured for provisioning of the integrated Web Service architecture and for monitoring and administration of the integrated Web Service architecture;

a Quality of Service layer configured to provide reliability, scalability, and

15   availability for the integrated Web Service architecture;

a security layer configured to provide authentication, entitlement, and non-repudiation security on the transport layer; and

an Open Standards layer.

20   23.   The system as recited in claim 18, wherein the integrated Web Service architecture is configured for use in implementing an Enterprise integrated Web Service.

24.   The system as recited in claim 18, wherein the integrated Web Service architecture is configured for use in implementing a Cross-Enterprise integrated Web

25   Service.

25.   The system as recited in claim 18, wherein the one or more components of the integrated Web Service architecture include one or more legacy mainframe systems.

26. The system as recited in claim 18, wherein the program instructions are further executable by the processor to define integration of one or more Enterprise Application Interface (EAI) products with the one or more Web Services technologies.

27. The system as recited in claim 18, wherein the plurality of integration tiers comprises one or more of: a client tier, a presentation tier, a business tier, an integration tier, and a resources tier.

28. The system as recited in claim 18, wherein the design patterns include one or more integration design patterns, wherein the integration design patterns comprise one or more of:

an Application-to-Application design pattern;

a Standard Build design pattern;

a Hub-Spoke Replication design pattern;

a Federated Replication design pattern;

a Multi-Step Application integration design pattern; and

a Data Exchange design pattern.

29. The system as recited in claim 18, wherein the design patterns include one of a Closed Process integration design pattern and an Open Process integration design pattern.

30. The system as recited in claim 18, wherein the design patterns include one of a Synchronous Mainframe Web Services design pattern and an Asynchronous Mainframe Web Services design pattern.

31. An integrated Web Services business system, comprising:

a plurality of heterogeneous business components; and

a Web Service comprising one or more Web Services technologies and configured

to provide interoperability among the plurality of heterogeneous business

components via a network;

wherein the integrated Web Services business system is configured according to a vendor-independent architecture framework for integrating Web Services technologies with business systems comprising a plurality of heterogeneous components in accordance with a structured integration methodology and one or more design patterns.

32. The system as recited in claim 31, wherein the integrated Web Services business system further comprises one or more Enterprise Application Interface (EAI) products integrated with the one or more Web Services technologies.

33. The system as recited in claim 31, wherein, the integrated Web Services business system comprises a plurality of integration tiers, wherein the plurality of integration tiers comprises one or more of: a client tier, a presentation tier, a business tier, an integration tier, and a resources tier.

34. The system as recited in claim 31, wherein the integrated Web Services business system is an Enterprise business system.

35. The system as recited in claim 31, wherein the integrated Web Services business system is a Cross-Enterprise business system.

36. The system as recited in claim 31, wherein the plurality of heterogeneous business components includes one or more legacy mainframe systems.

37. The system as recited in claim 31, wherein the integrated Web Services business system comprises:

a service provider configured to provide one or more services on the integrated Web Services business system; and

one or more service requesters configured to access the one or more services from

the service provider via the network.

38.   The system as recited in claim 37, wherein the integrated Web Service business system is a Business-to-Consumer system, wherein the service provider is a business service provider, and wherein the service requester is an end user.

39.   The system as recited in claim 37, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

40.   The system as recited in claim 31, wherein the design patterns include one of a Synchronous Mainframe Web Services design pattern and an Asynchronous Mainframe Web Services design pattern.

41.   The system as recited in claim 31, wherein the design patterns include one or more of:

an Application-to-Application design pattern;

a Standard Build design pattern;

a Hub-Spoke Replication design pattern;

a Federated Replication design pattern;

a Multi-Step Application integration design pattern;

a Data Exchange design pattern;

a Closed Process integration design pattern;

an Open Process integration design pattern;

a Service Consolidation–Broker integration design pattern; and

a Reverse Auction–Broker integration design pattern.

42.   A system for integrating Web Services with a business system, comprising:

means for generating an integrated Web Services architecture for a business

system;

means for applying a Web Services structured methodology and one or more design patterns to the integrated Web Service architecture; and

means for implementing an integrated Web Service according to the integrated

5   Web Service architecture.

43.   The system as recited in claim 42, wherein the business system is one of an Enterprise business system and a Cross-Enterprise business system.

10   44.   The system as recited in claim 42, wherein the business system includes one or more legacy mainframe systems.

45.   A method for integrating Web Services with a business system, comprising:

15   generating an integrated Web Service architecture comprising a plurality of heterogeneous components of the business system in accordance with one or more integration design patterns, wherein said generating an integrated Web Service architecture comprises:

20   generating one or more Use Cases for the integrated Web Service;

generating a high-level architecture for the integrated Web Service, wherein the high-level architecture identifies entities of the integrated Web Service and the relationships and interactions among the entities; and

25   generating a logical architecture for the integrated Web Service according to the Use Cases, wherein the logical architecture identifies two or more logical components of the integrated Web Service and the relationship among the logical components, and wherein the logical architecture comprises two or more layers; and

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implementing the Web Service integrated with the business system according to the integrated Web Service architecture.

46.   The method as recited in claim 45, wherein said generating an integrated Web Service architecture comprises:

defining a plurality of integration tiers, one or more basic components, and one or more Web Services technologies for integration; and

defining how each of the plurality of integration tiers communicates with others of the plurality of integration tiers.

47.   The method as recited in claim 46, wherein the plurality of integration tiers comprises one or more of: a client tier, a presentation tier, a business tier, an integration tier, and a resources tier.

48.   The method as recited in claim 45, wherein said generating an integrated Web Service architecture further comprises defining integration of one or more Enterprise Application Interface (EAI) products with the one or more Web Services technologies.

49.   The method as recited in claim 45, wherein the business system is an Enterprise business system.

50.   The method as recited in claim 45, wherein the business system is a Cross-Enterprise business system.

51.   The method as recited in claim 45, wherein the plurality of heterogeneous components of the business system includes one or more legacy mainframe systems.

52.   The method as recited in claim 45, wherein the integrated Web Service architecture comprises:

a service provider configured to provide one or more services on an integrated

Web Service business system implemented according to the integrated Web Service architecture; and

one or more service requesters configured to access the one or more services from the service provider via a network.

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53.   The method as recited in claim 52, wherein the integrated Web Service business system is a Business-to-Consumer system, wherein the service provider is a business service provider, and wherein the service requester is an end user.

10   54.   The method as recited in claim 52, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

55.   The method as recited in claim 45, wherein the design patterns include one of a

15   Synchronous Mainframe Web Services design pattern and an Asynchronous Mainframe Web Services design pattern.

56.   The method as recited in claim 45, wherein the design patterns include one or more of:

20   an Application-to-Application design pattern;

          a Standard Build design pattern;

          a Hub-Spoke Replication design pattern;

          a Federated Replication design pattern;

          a Multi-Step Application integration design pattern;

25   a Data Exchange design pattern;

          a Closed Process integration design pattern;

          an Open Process integration design pattern;

          a Service Consolidation–Broker integration design pattern; and

          a Reverse Auction–Broker integration design pattern.

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57. The method as recited in claim 45, wherein the layers comprise two or more of:

a network layer configured to serve as an underlying network for integrated Web Services implemented according to the integrated Web Service architecture;

a transport layer for delivering messages between components of the integrated Web Services;

a service description language layer configured to describe service type and functionality of the integrated Web Services;

a transaction routing layer configured to route messages on the transport layer;

a service discovery layer configured to search for and locate the integrated Web Services;

a service negotiation layer configured to negotiate exchanges between service requesters and service providers implemented according to the integrated Web Service architecture;

a management layer configured for provisioning of the integrated Web Services and for monitoring and administration of the integrated Web Services;

a Quality of Service layer configured to provide reliability, scalability, and availability for the integrated Web Services;

a security layer configured to provide authentication, entitlement, and non-repudiation security on the transport layer; and

an Open Standards layer.

58. A method for generating an integrated Web Service architecture, comprising:

identifying one or more components of the integrated Web Service architecture according to one or more use case requirements;

defining a plurality of integration tiers and one or more Web Services technologies according to a Web Services architecture integration framework;

defining how each of the plurality of integration tiers communicates with others of the plurality of integration tiers according to the Web Services architecture integration framework;

organizing the components according to the integration tiers and two or more layers of the integrated Web Service architecture; and

applying one or more design patterns to the integrated Web Service architecture where appropriate.

59.   The method as recited in claim 58, wherein the integrated Web Service architecture comprises:

a service provider configured to provide one or more services on an integrated Web Service business system implemented according to the integrated Web Service architecture; and

one or more service requesters configured to access the one or more services from the service provider via a network.

60.   The method as recited in claim 59, wherein the integrated Web Service business system is a Business-to-Consumer system, wherein the service provider is a business service provider, and wherein the service requester is an end user.

61.   The method as recited in claim 59, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

62.   The method as recited in claim 58, wherein the layers comprise two or more of:

a network layer configured to serve as an underlying network for Web Services implemented according to the integrated Web Service architecture;

a transport layer for delivering messages between components of the integrated Web Service architecture;

a service description language layer configured to describe service type and

functionality of the integrated Web Service architecture;

a transaction routing layer configured to route messages on the transport layer;

a service discovery layer configured to search for and locate services in the integrated Web Service architecture;

a service negotiation layer configured to negotiate exchanges between service requesters and service providers implemented according to the integrated Web Service architecture;

a management layer configured for provisioning of the integrated Web Service architecture and for monitoring and administration of the integrated Web Service architecture;

a Quality of Service layer configured to provide reliability, scalability, and availability for the integrated Web Service architecture;

a security layer configured to provide authentication, entitlement, and non-repudiation security on the transport layer; and

an Open Standards layer.

63. The method as recited in claim 58, wherein the integrated Web Service architecture is configured for use in implementing an Enterprise integrated Web Service.

64. The method as recited in claim 58, wherein the integrated Web Service architecture is configured for use in implementing a Cross-Enterprise integrated Web Service.

65. The method as recited in claim 58, wherein the one or more components of the integrated Web Service architecture include one or more legacy mainframe systems.

66. The method as recited in claim 58, further comprising defining integration of one or more Enterprise Application Interface (EAI) products with the one or more Web Services technologies.

67.   The method as recited in claim 58, wherein the plurality of integration tiers comprises one or more of: a client tier, a presentation tier, a business tier, an integration tier, and a resources tier.

5   68.   The method as recited in claim 58, wherein the design patterns include one or more of:

    an Application-to-Application design pattern;

    a Standard Build design pattern;

    a Hub-Spoke Replication design pattern;

10   a Federated Replication design pattern;

    a Multi-Step Application integration design pattern;

    a Data Exchange design pattern;

    a Closed Process integration design pattern;

    an Open Process integration design pattern;

15   a Service Consolidation–Broker integration design pattern; and

    a Reverse Auction–Broker integration design pattern.

69.   A computer-accessible medium comprising program instructions, wherein the

20   program instructions are configured to implement:

    generating an integrated Web Service architecture comprising a plurality of heterogeneous components of the business system in accordance with one or more integration design patterns, wherein said generating an integrated Web Service architecture comprises:

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    generating one or more Use Cases for the integrated Web Service;

    generating a high-level architecture for the integrated Web Service, wherein the high-level architecture identifies entities of the integrated Web Service and the relationships and interactions

30   among the entities; and

generating a logical architecture for the integrated Web Service according
to the Use Cases, wherein the logical architecture identifies two or
more logical components of the integrated Web Service and the
relationship among the logical components, and wherein the
logical architecture comprises two or more layers; and

implementing the Web Service integrated with the business system according to
the integrated Web Service architecture.

70.   The computer-accessible medium as recited in claim 69, wherein, in said
generating an integrated Web Service architecture, the program instructions are further
configured to implement:

defining a plurality of integration tiers, one or more basic components, and one or
more Web Services technologies for integration; and

defining how each of the plurality of integration tiers communicates with others of
the plurality of integration tiers.

71.   The computer-accessible medium as recited in claim 70, wherein the plurality of
integration tiers comprises one or more of: a client tier, a presentation tier, a business tier,
an integration tier, and a resources tier.

72.   The computer-accessible medium as recited in claim 69, wherein, in said
generating an integrated Web Service architecture, the program instructions are further
configured to implement defining integration of one or more Enterprise Application
Interface (EAI) products with the one or more Web Services technologies.

73.   The computer-accessible medium as recited in claim 69, wherein the business
system is an Enterprise business system.

74.   The computer-accessible medium as recited in claim 69, wherein the business

system is a Cross-Enterprise business system.

75.   The computer-accessible medium as recited in claim 69, wherein the plurality of heterogeneous components of the business system includes one or more legacy mainframe systems.

76.   The computer-accessible medium as recited in claim 69, wherein the integrated Web Service architecture comprises:

        a service provider configured to provide one or more services on an integrated Web Service business system implemented according to the integrated Web Service architecture; and

        one or more service requesters configured to access the one or more services from the service provider via a network.

77.   The computer-accessible medium as recited in claim 76, wherein the integrated Web Service business system is a Business-to-Consumer system, wherein the service provider is a business service provider, and wherein the service requester is an end user.

78.   The computer-accessible medium as recited in claim 76, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

79.   The computer-accessible medium as recited in claim 69, wherein the design patterns include one of a Synchronous Mainframe Web Services design pattern and an Asynchronous Mainframe Web Services design pattern.

80.   The computer-accessible medium as recited in claim 69, wherein the design patterns include one or more of:

        an Application-to-Application design pattern;

a Standard Build design pattern;

a Hub-Spoke Replication design pattern;

a Federated Replication design pattern;

a Multi-Step Application integration design pattern;

5   a Data Exchange design pattern;

a Closed Process integration design pattern;

an Open Process integration design pattern;

a Service Consolidation–Broker integration design pattern; and

a Reverse Auction–Broker integration design pattern.

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81.   The computer-accessible medium as recited in claim 69, wherein the layers comprise two or more of:

a network layer configured to serve as an underlying network for integrated Web

15   Services implemented according to the integrated Web Service architecture;

a transport layer for delivering messages between components of the integrated Web Services;

a service description language layer configured to describe service type and

20   functionality of the integrated Web Services;

a transaction routing layer configured to route messages on the transport layer;

a service discovery layer configured to search for and locate the integrated Web Services;

a service negotiation layer configured to negotiate exchanges between service

25   requesters and service providers implemented according to the integrated Web Service architecture;

a management layer configured for provisioning of the integrated Web Services and for monitoring and administration of the integrated Web Services;

a Quality of Service layer configured to provide reliability, scalability, and

30   availability for the integrated Web Services;

a security layer configured to provide authentication, entitlement, and non-

repudiation security on the transport layer; and

an Open Standards layer.

82.   A computer-accessible medium comprising program instructions, wherein the
program instructions are configured to implement:

identifying one or more components of the integrated Web Service architecture
according to one or more use case requirements;

defining a plurality of integration tiers and one or more Web Services
technologies according to a Web Services architecture integration
framework;

defining how each of the plurality of integration tiers communicates with others of
the plurality of integration tiers according to the Web Services architecture
integration framework;

organizing the components according to the integration tiers and two or more
layers of the integrated Web Service architecture; and

applying one or more design patterns to the integrated Web Service architecture
where appropriate.

83.   The computer-accessible medium as recited in claim 82, wherein the integrated
Web Service architecture comprises:

a service provider configured to provide one or more services on an integrated
Web Service business system implemented according to the integrated
Web Service architecture; and

one or more service requesters configured to access the one or more services from
the service provider via a network.

84.   The computer-accessible medium as recited in claim 83, wherein the integrated
Web Service business system is a Business-to-Consumer system, wherein the service
provider is a business service provider, and wherein the service requester is an end user.

85. The computer-accessible medium as recited in claim 83, wherein the integrated Web Service business system is a Business-to-Business system, wherein the service provider is a business service provider, and wherein the service requester is a business server.

86. The computer-accessible medium as recited in claim 82, wherein the layers comprise two or more of:

a network layer configured to serve as an underlying network for Web Services implemented according to the integrated Web Service architecture;

a transport layer for delivering messages between components of the integrated Web Service architecture;

a service description language layer configured to describe service type and functionality of the integrated Web Service architecture;

a transaction routing layer configured to route messages on the transport layer;

a service discovery layer configured to search for and locate services in the integrated Web Service architecture;

a service negotiation layer configured to negotiate exchanges between service requesters and service providers implemented according to the integrated Web Service architecture;

a management layer configured for provisioning of the integrated Web Service architecture and for monitoring and administration of the integrated Web Service architecture;

a Quality of Service layer configured to provide reliability, scalability, and availability for the integrated Web Service architecture;

a security layer configured to provide authentication, entitlement, and non-repudiation security on the transport layer; and

an Open Standards layer.

87.   The computer-accessible medium as recited in claim 82, wherein the integrated Web Service architecture is configured for use in implementing an Enterprise integrated Web Service.

88.   The computer-accessible medium as recited in claim 82, wherein the integrated Web Service architecture is configured for use in implementing a Cross-Enterprise integrated Web Service.

89.   The computer-accessible medium as recited in claim 82, wherein the one or more components of the integrated Web Service architecture include one or more legacy mainframe systems.

90.   The computer-accessible medium as recited in claim 82, wherein the program instructions are further configured to implement defining integration of one or more Enterprise Application Interface (EAI) products with the one or more Web Services technologies.

91.   The computer-accessible medium as recited in claim 82, wherein the plurality of integration tiers comprises one or more of: a client tier, a presentation tier, a business tier, an integration tier, and a resources tier.

92.   The computer-accessible medium as recited in claim 82, wherein the design patterns include one or more of:

        an Application-to-Application design pattern;

        a Standard Build design pattern;

        a Hub-Spoke Replication design pattern;

        a Federated Replication design pattern;

        a Multi-Step Application integration design pattern;

        a Data Exchange design pattern;

        a Closed Process integration design pattern;

an Open Process integration design pattern;

a Service Consolidation–Broker integration design pattern; and

a Reverse Auction–Broker integration design pattern.